



Chittenden County
I-89 2050 Study

Senate Transportation Committee I-89 Bundle 2: Transportation Climate Actions for Chittenden County

February 11th, 2022





Presentation Outline

1. I-89 Project Background
2. I-89 Transportation Demand Management (TDM) Focus Group
3. Telework Evaluation
4. Strategic Model to assess investments & policies to decrease VMT & GHG Emissions
5. Strategic Model Evaluation & Results
6. Advisory Committee Action on Bundle 2
7. Next Steps

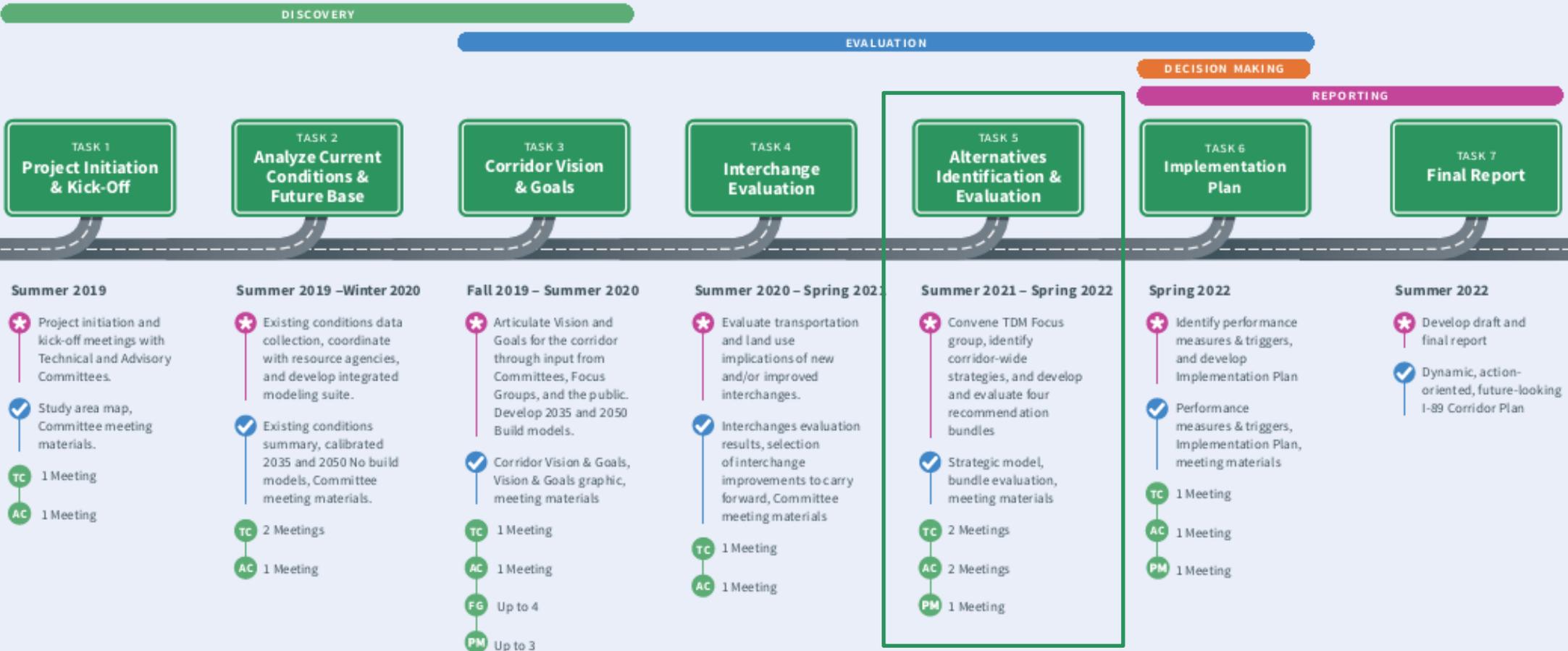
Project Background



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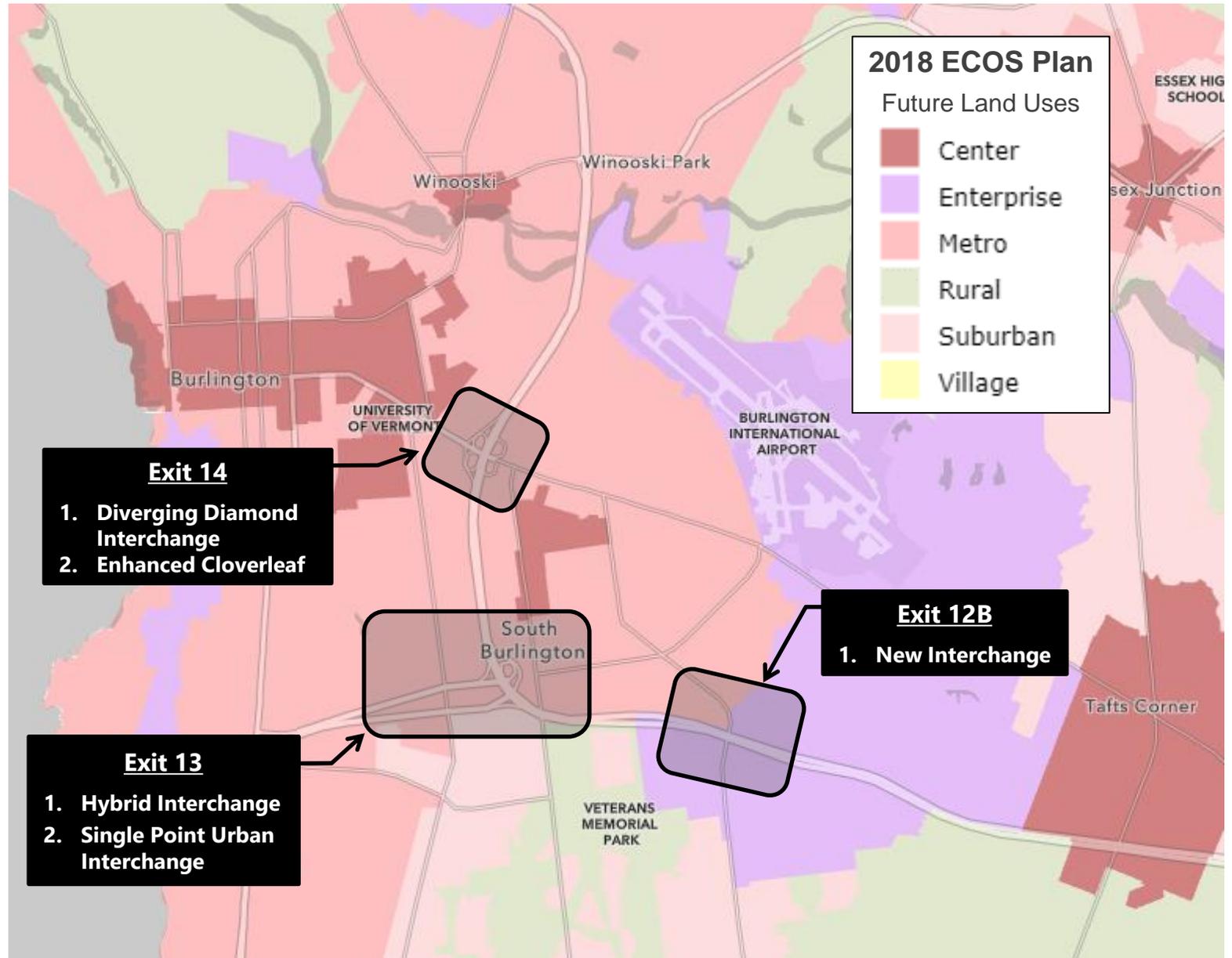


Our schedule for successfully moving from project kick-off through stakeholder engagement and technical evaluations to develop a comprehensive, forward-looking plan for the I-89 corridor.



Interchange Evaluation

1. Exit 12B – South Burlington
2. Exit 13 – South Burlington
 - Single Point Diamond Interchange (SPDI)
 - Hybrid Interchange
3. Exit 14 – South Burlington
 - Enhanced Cloverleaf
 - Diverging Diamond Interchange



Proposed I-89 Corridor Bundles (2050)

		Bundle 1 No Build	Bundle 2 TDM / Bike/Ped / Transit	Bundle 3 Exit 14 DDI	Bundle 4 Exit 13 SPDI	Bundle 5 Exit 12B
	Investments					
Multimodal Operational Improvements	CCRPC MTP Investments		✓	✓	✓	✓
	Public Transit (<i>new service, increased frequency, etc.</i>)		✓	✓	✓	✓
	Biking (<i>lanes, paths, signals, etc.</i>)		✓	✓	✓	✓
	Walking (<i>sidewalks, paths, crosswalks, signals, etc.</i>)		✓	✓	✓	✓
	Transportation Demand Management (<i>park and ride lots, ridesharing, telecommuting, TMA, etc.</i>)		✓	✓	✓	✓
	Intelligent Transportation Systems (<i>signage, signals, etc.</i>)		✓	✓	✓	✓
Capacity Expansion	Interchange Geometric & Safety Enhancements		✓	✓	✓	✓
	Exit 14 Diverging Diamond Interchange			✓	✓	✓
	Exit 13 Single Point Diamond Interchange				✓	
	Exit 12B New Interchange					✓
	I-89 Third Lane (TBD)				?	?

I-89 Transportation Demand Management (TDM) Focus Group



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I-89 TDM Focus Group Participants

- **Transportation Equity Coalition:** Jill Allen, Billy Miles, Kirsten Nielsen
- **VTrans:** Amy Bell, Dan Currier, Costa Pappis, Joe Segale
- **Town of Williston:** Matt Boulanger
- **City of South Burlington:** Justin Rabidoux
- **Green Mountain Transit:** Jamie Smith, Chris Damiani
- **Burlington Electric Department:** Jennifer Green
- **CATMA:** Sandy Thibault
- **Local Motion:** Jonathon Weber, Karen Yacos
- **Conservation Law Foundation:** Dale Azaria
- **Sustainable Transportation Vermont:** Jack Hanson
- **Staff:** CCRPC, RSG, VHB

I-89 Corridor TDM Focus Group Role

- Assisted with defining Bundle 2
- Acted as advisory committee for Strategic Model
- Met three times to inform policies and investments to evaluate:
 - Where to apply policies
 - What assumptions and values should be tested
- Reviewed results of the Strategic Model and Telework evaluation
- Provided direction on policies and investments to advance

Telework Evaluation



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Job Category Mix in Study Area

Professional

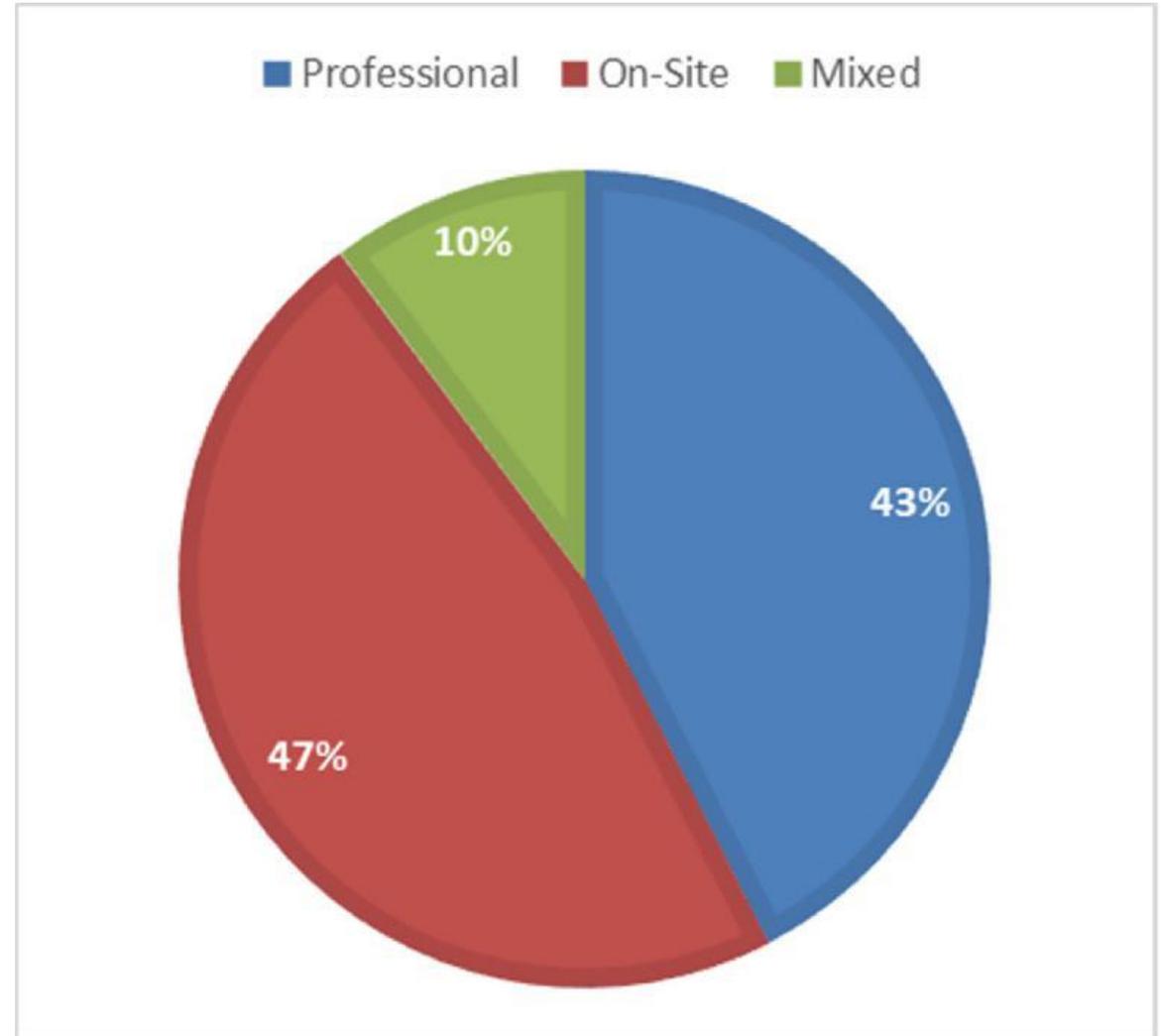
- Management
- Business and financial operations
- Computer and mathematical
- Architecture and engineering
- Legal
- Educational instruction and library
- Arts, design, entertainment, sports, and media
- Office and administrative support

Mixed

- Transportation and material moving
- Life, physical, and social science
- Community and social service

On-Site

- Healthcare practitioners and technical
- Healthcare support
- Protective service
- Food preparation and serving related
- Building and grounds cleaning and maintenance
- Personal care and service
- Sales and related
- Farming, fishing, and forestry
- Construction and extraction
- Installation, maintenance, and repair
- Production



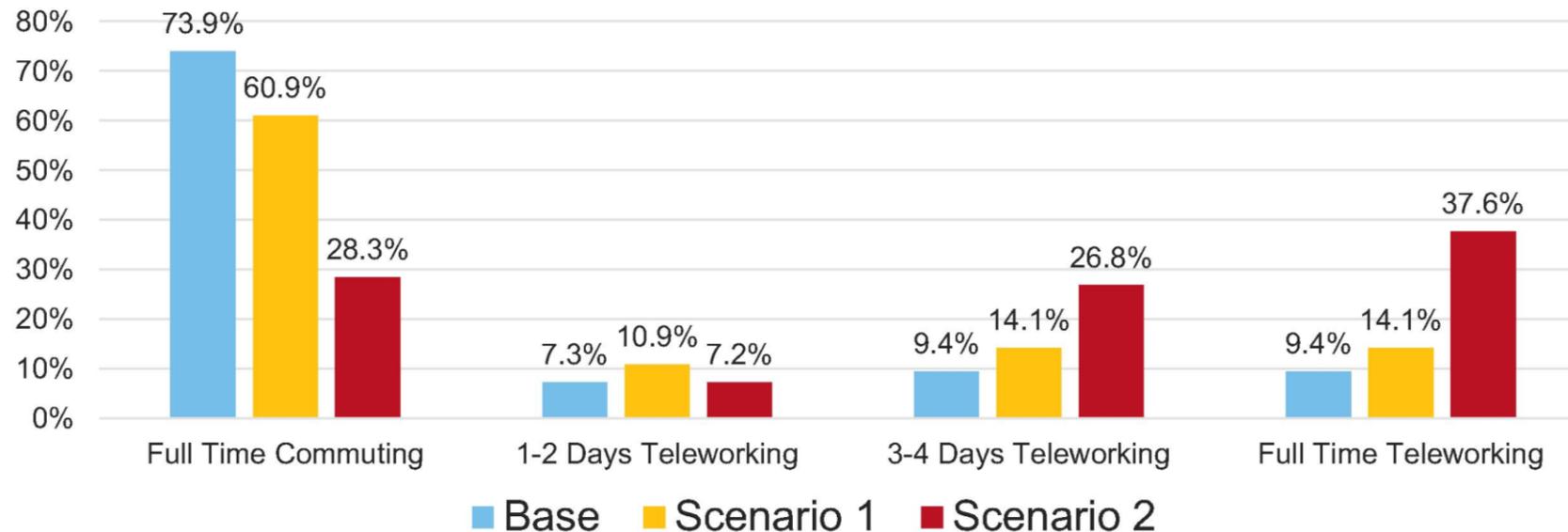
Possible VMT Reductions due to Teleworking

- Scenario 1

- ~11% reduction in daily commuter VMT
- Approximate 50% increase in telework participation

- Scenario 2

- ~ 52% reduction in daily commuter VMT
- Based off initial pandemic state of emergency



Strategic Model

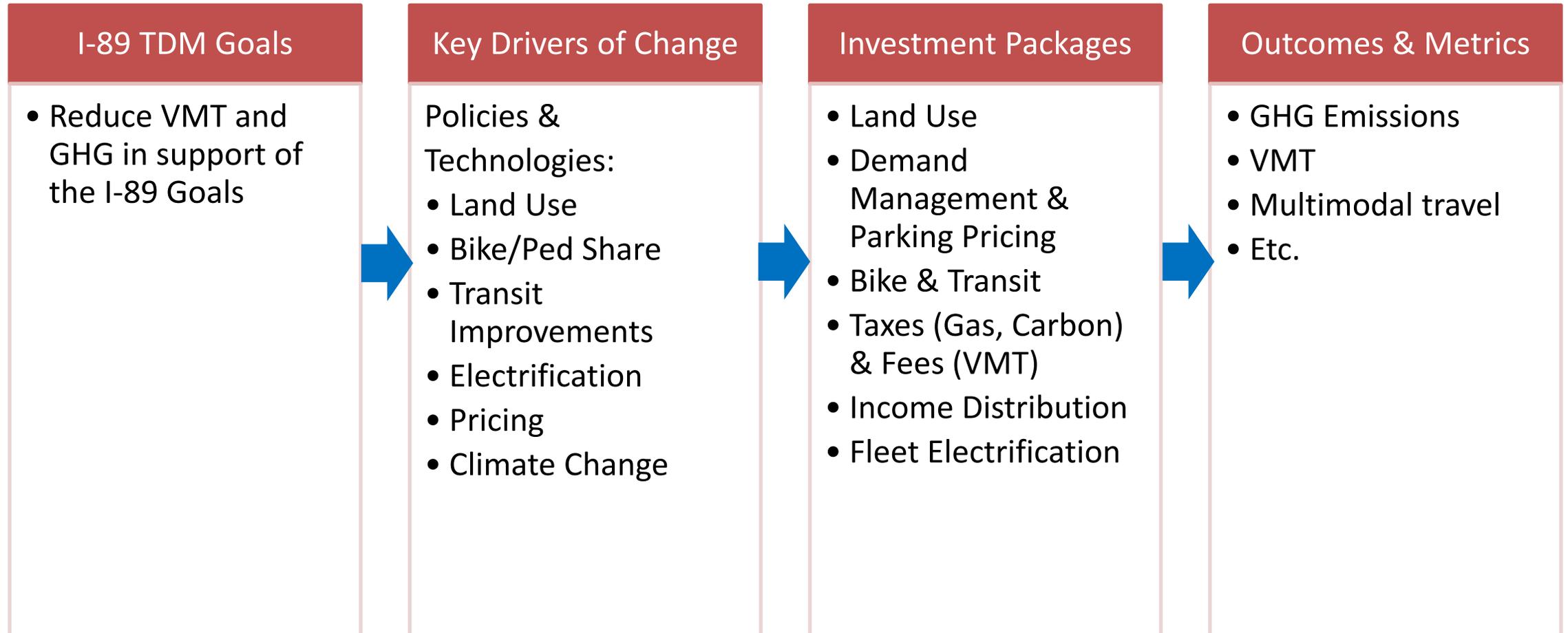


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Why a Strategic Model for Bundle 2?

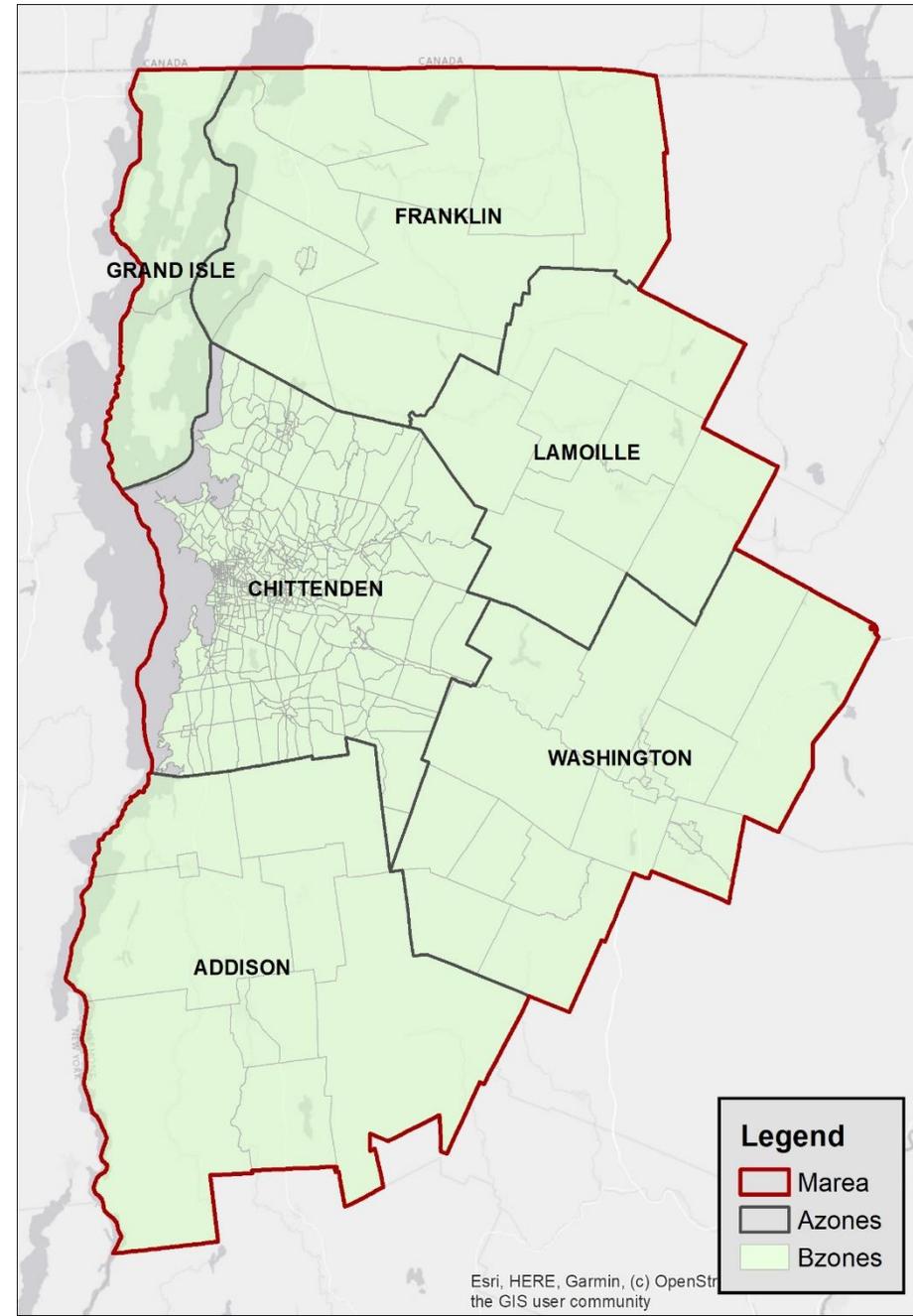
- Best tool to evaluate policies and investments to reduce vehicle miles traveled (VMT) and greenhouse gas emissions (GHG)
- Strategic model is an econometric model that is sensitive to:
 - variety of policies and investments that affect household travel
 - multiple modes of travel (bus, walk, taxi, bike)
 - how travel may be constrained by pricing (e.g., gas, carbon, VMT tax)

Summary of Strategic Model Process



Strategic Model Area

- Chittenden County and surrounding five counties
- Increased granularity in Chittenden County



Strategic Model Evaluation & Results



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Scenario Testing Structure

Land Use & Community Design	Bike & Transit	Demand Management	Pricing	Income	Commercial Vehicles
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1

2

3

4

- Each policy or investment option has different levels which are evaluated
- The Strategic Model runs all the combinations of levels within the six options

Levels

Scenario Testing Structure

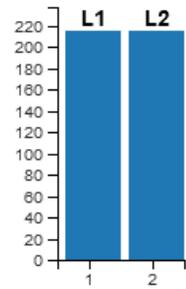
Land Use & Community Design	Bike & Transit	Demand Management	Pricing	Income	Commercial Vehicles
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Levels	1	Base – no change from CCRPC’s Metropolitan Transportation Plan					
	2	Land Use 2	Double Bike Trips	Double TDM	Carbon Tax	Smaller Middle Class	Decreased cost of ride-hailing. Increase EVs
		Community Design	Transit L2	Parking L2			
	3		Double Bike Trips	Double TDM	Double cost of fuel	Larger Middle Class	
		Transit L3	Parking L3				
4				Mileage-based Fee			

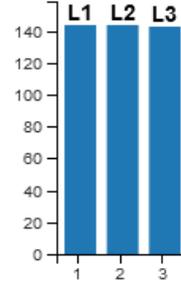
Strategic Model Outputs

Scenario Input Levels | [Clear All Selections](#)

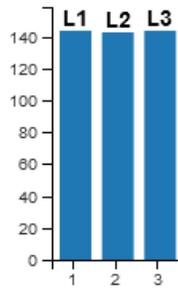
Land Use & Community Design >



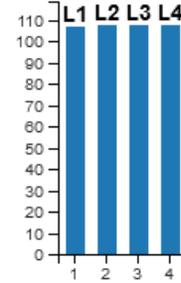
Bike & Transit >



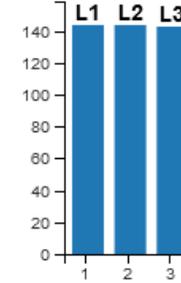
Demand Management >



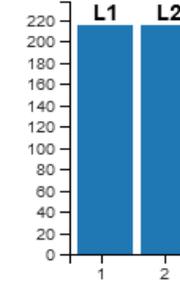
Pricing >



Income >



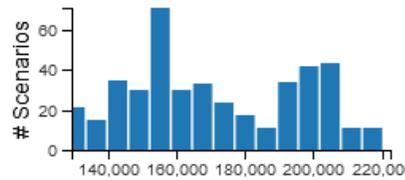
Vehicles >



Model Outputs: 431 scenarios selected out of 431 scenarios | [Clear All Selections](#)

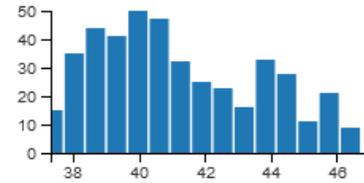
Transit Trips >

Average = 170k annual trips



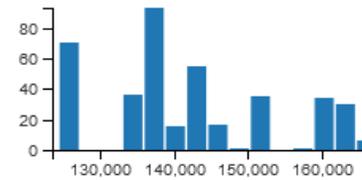
DVMT Per Household >

Average = 42 daily miles



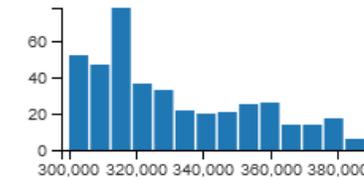
Walk Trips >

Average = 140k trips



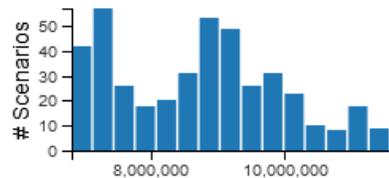
Air Pollution Emissions >

Average = 330k daily metric tons



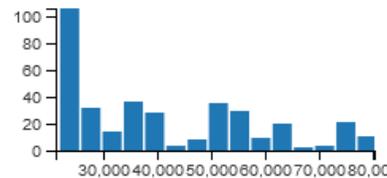
Annual Fuel Use >

Average = 8.8M million gallons



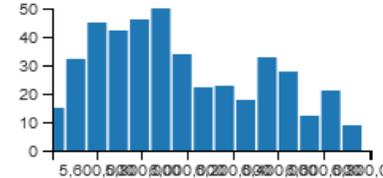
Bike Trips >

Average = 40k trips



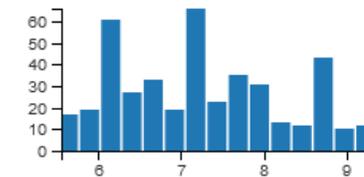
Total DVMT >

Average = 6.0M million daily miles



Low Income Household DVMT Per Household >

Average = 7.3 daily miles

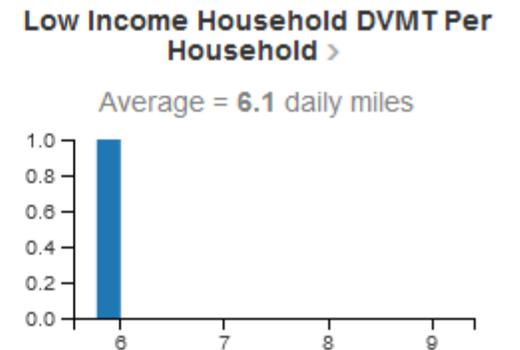
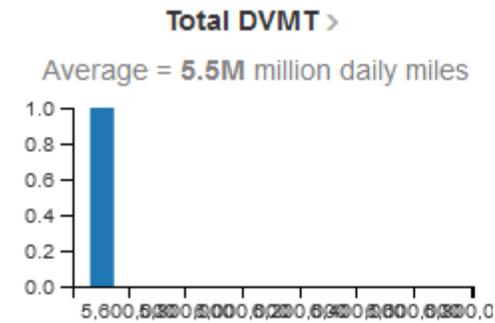
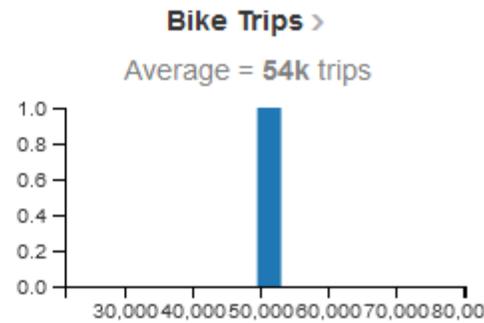
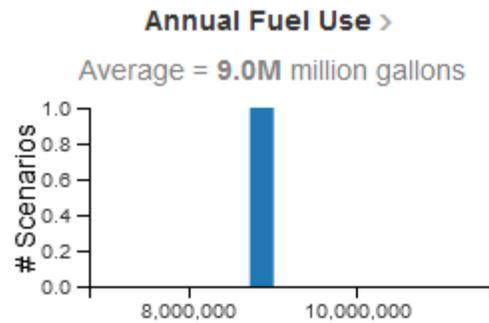
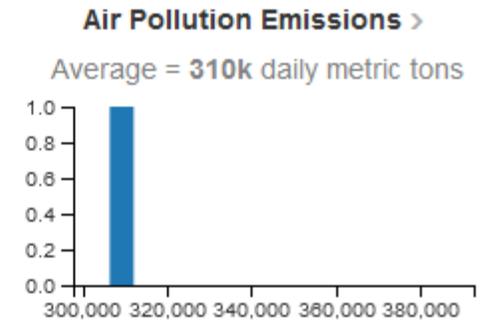
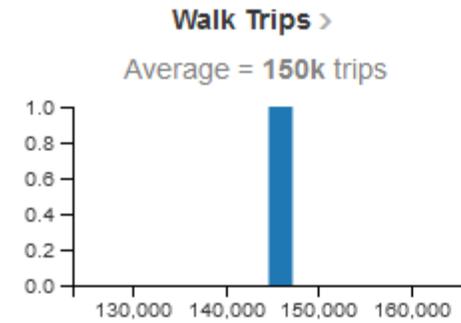
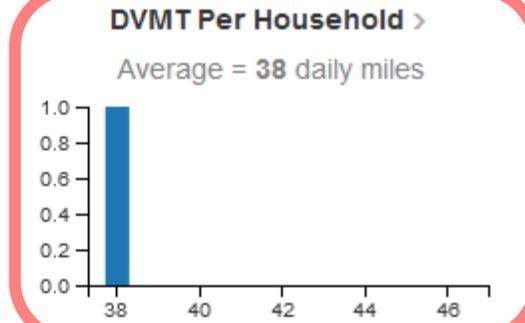
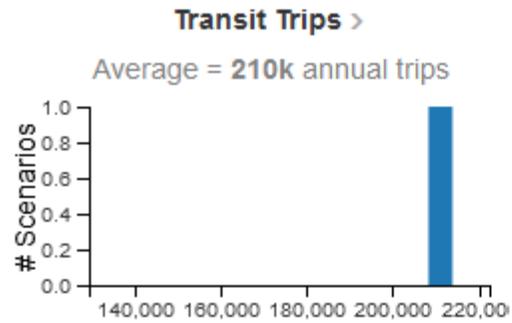


How is the Strategic Model Used

- Not a prediction or forecast of the future
- If we want low VMT/GHG, what policy and investment options are most likely to get us there?

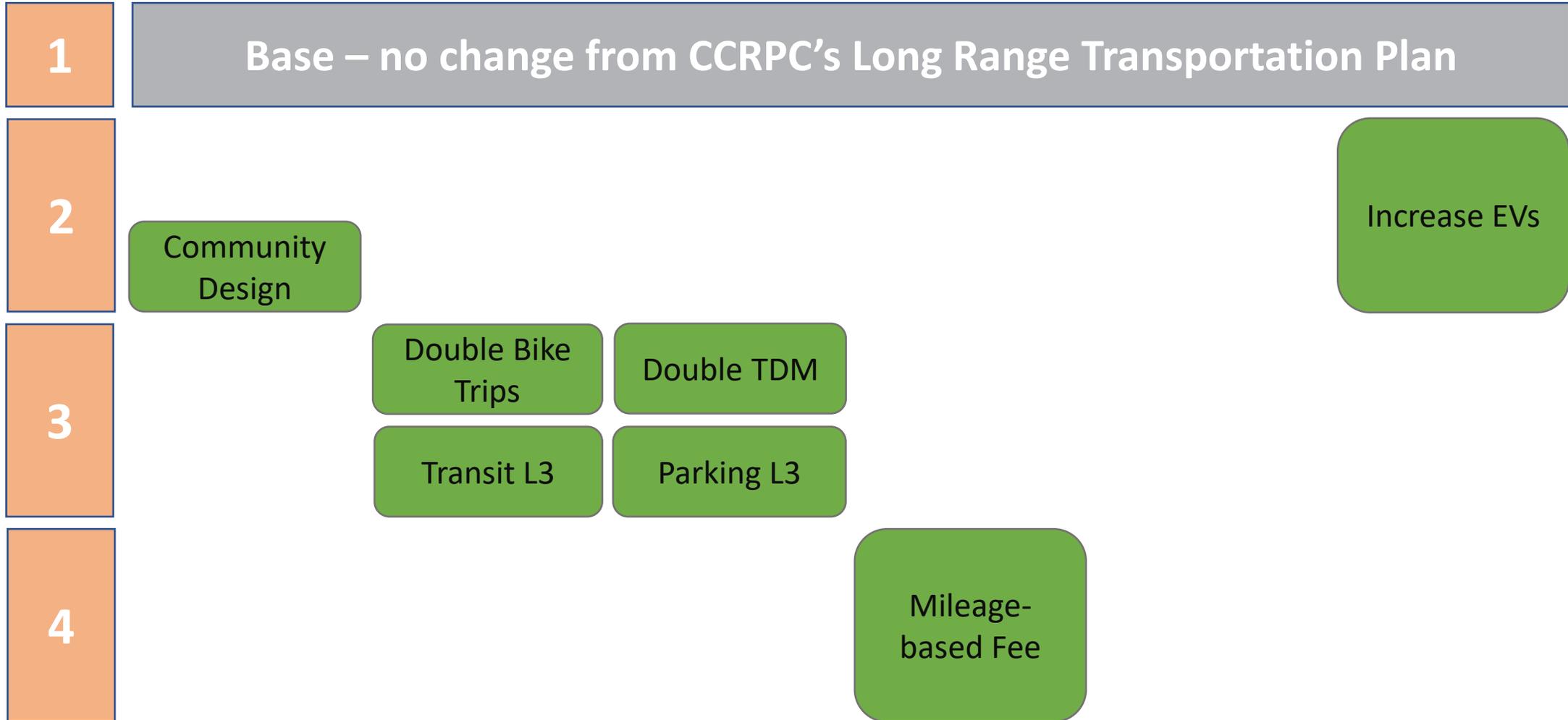
Strategic Model Results – Low Vehicle Miles Traveled (VMT) Scenario

Model Outputs: **1 scenarios** selected out of 431 scenarios | [Clear All Selections](#)



Low Vehicle Miles Traveled (VMT) Scenario

Land Use & Community Design	Bike & Transit	Demand Management	Pricing	Income	Commercial Vehicles
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Recommended Policies & Investments to be included in Bundle 2

- Increase teleworking by 50%
- MTP land use density (90% of Households in existing developed areas)
- Double trips made by bike
- Triple transit services and improve frequencies
- Double participation in TDM programs and increase cost of parking
- Mileage-based fee (5 cents/mile)

Total VMT
reduction between
10% and 20%

Advisory Committee Action on Bundle 2

Public Meeting held on January 26, 2022

Advisory Committee Action on February 8, 2022:

The I-89 Advisory Committee supports further evaluation of the recommended policies and investments for Bundle 2. All in favor.

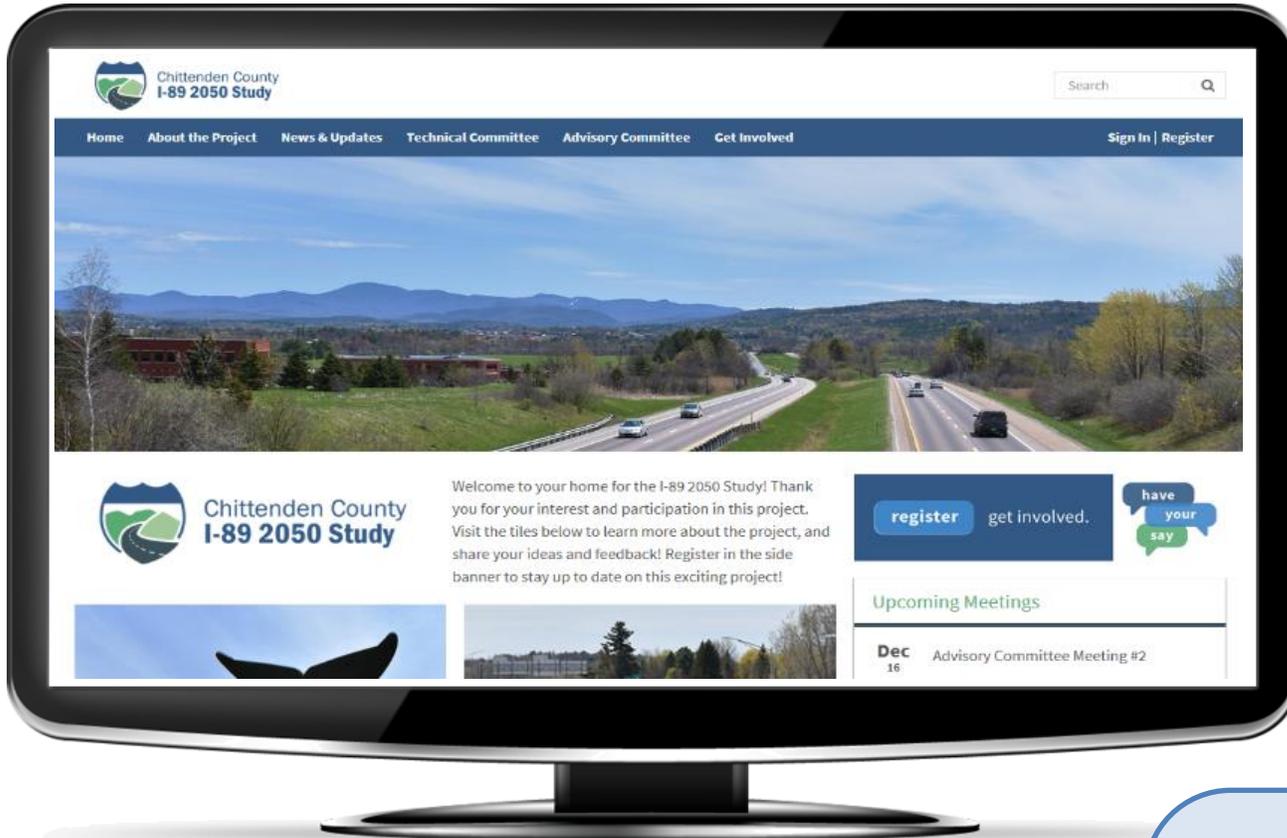
Thank you Next Steps



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I-89 Study Next Steps

- Use the relevant strategic model outputs and telework VMT reductions to develop the Bundle 2 travel demand model.
- Use Bundle 2 travel demand model as the base to run Bundle 3 (*Exit 14 DDI*), Bundle 4 (*Exits 14 DDI & 13 SPDI*), and Bundle 5 (*Exits 14 DDI & 12B*); I-89 mainline capacity will also be evaluated for all Bundles
- Next Public meeting: April/May to review results of all Bundles
- Next Advisory Committee in May
- Milton and Bolton Interchanges technical assessment report forthcoming



Web: www.envision89.com

Twitter: [@envision89](https://twitter.com/envision89)

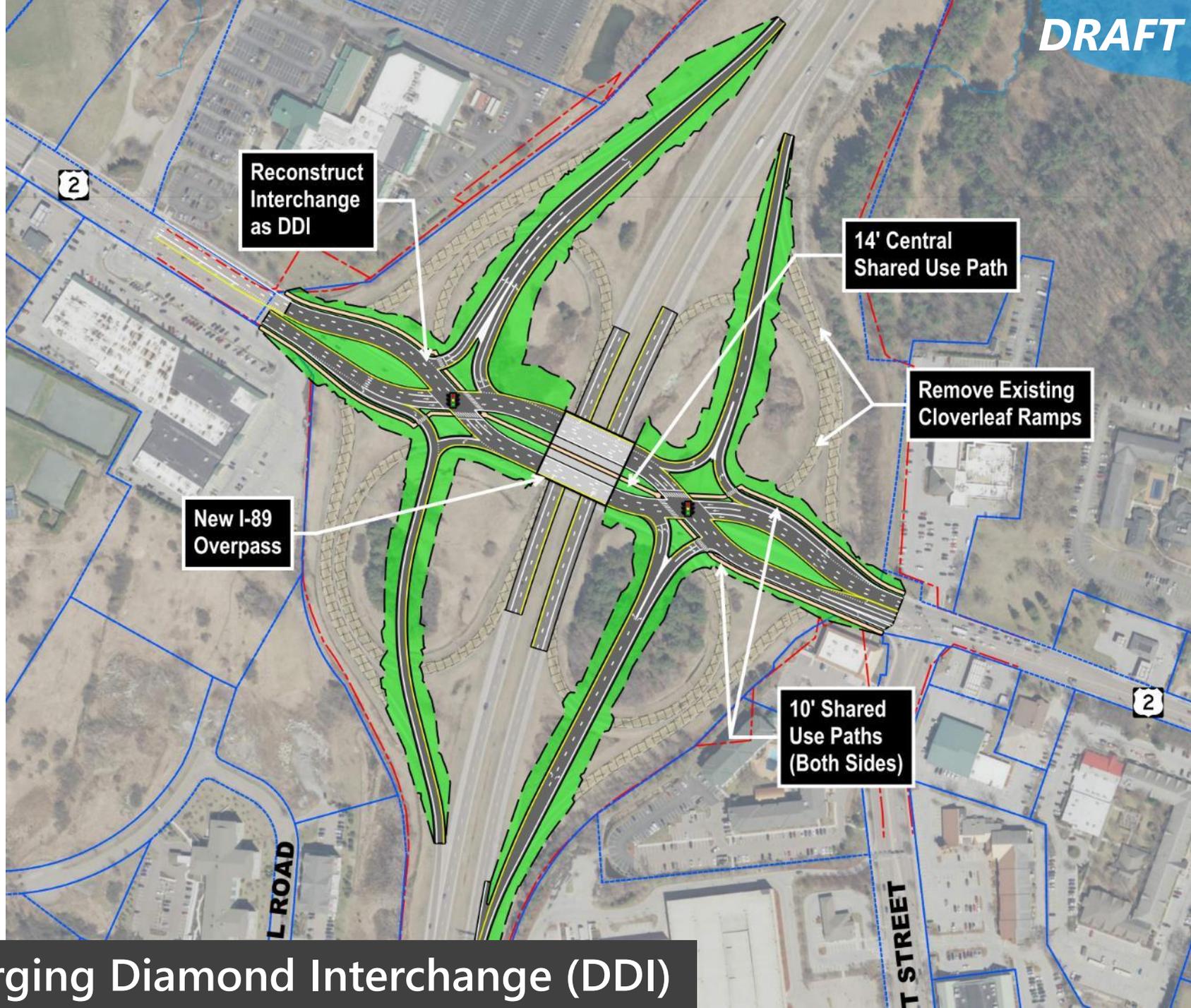
Facebook: [Envision89](https://www.facebook.com/Envision89)



Please reach out to us if you would have questions or comments.

- **Charlie Baker:** cbaker@ccrpcvt.org
- **Eleni Churchill:** echurchill@ccrpcvt.org

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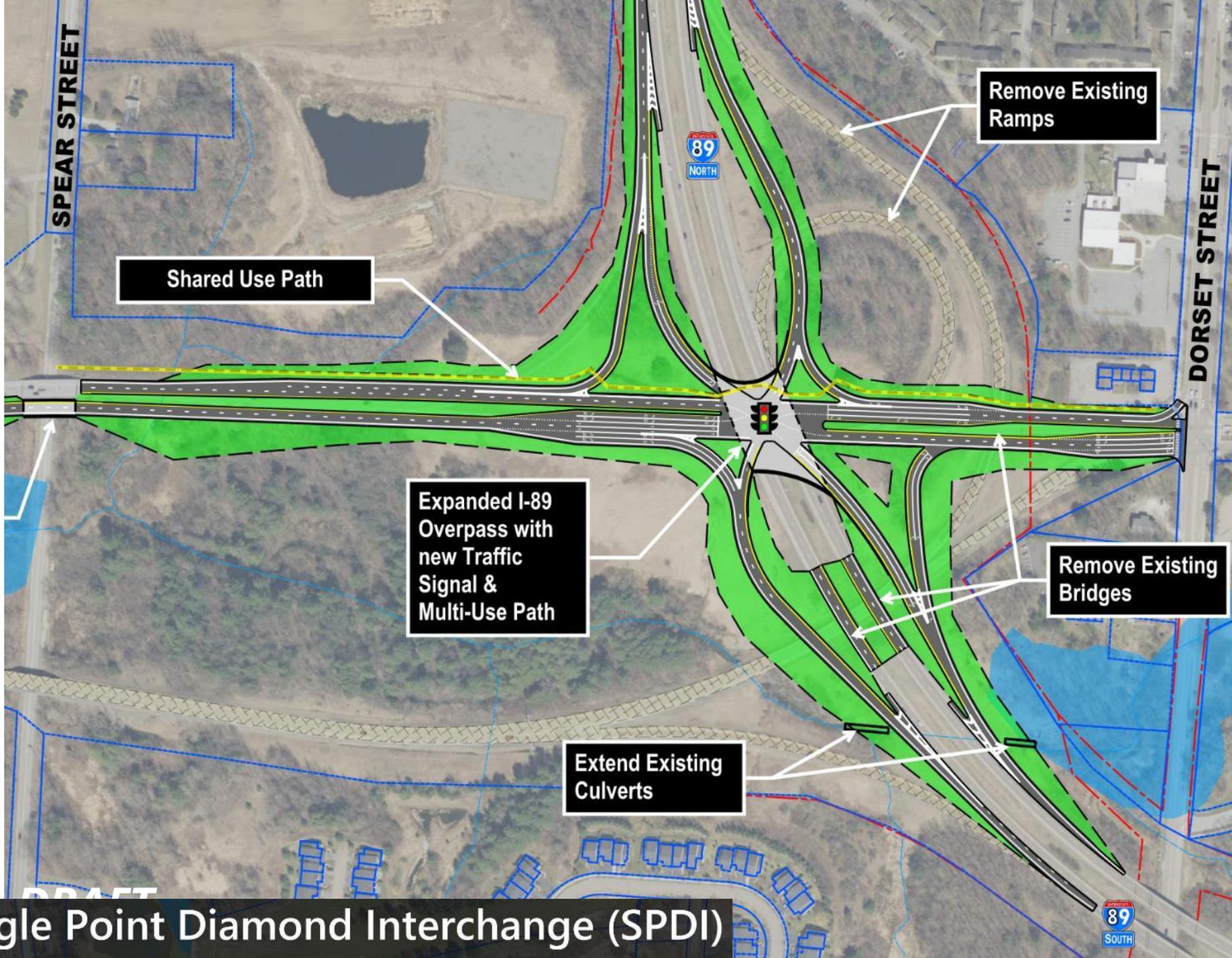


Exit 14 – Diverging Diamond Interchange (DDI)

Exit 13 - Single Point Diamond Interchange (SPDI)

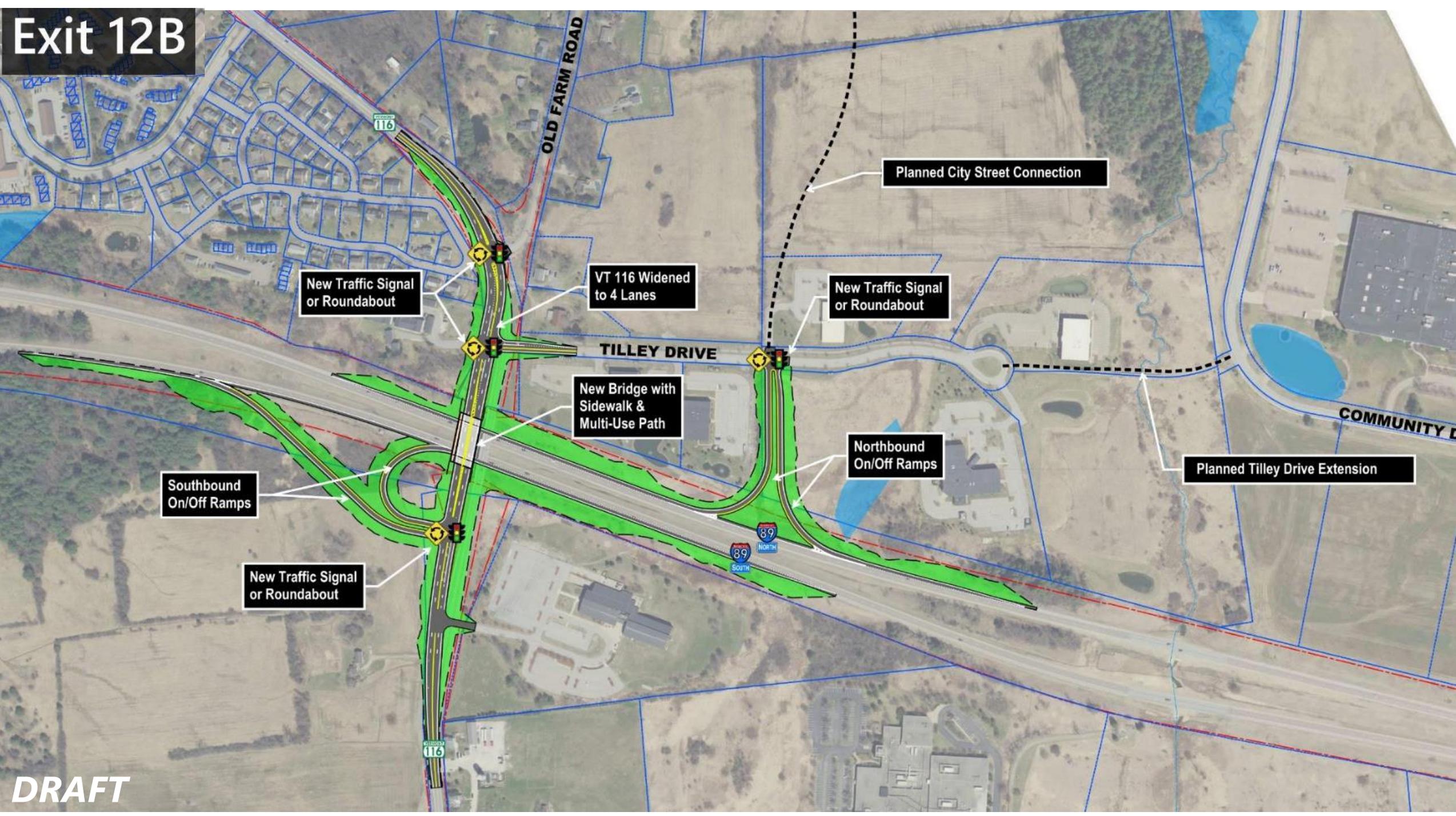


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Exit 13 - Single Point Diamond Interchange (SPDI)

Exit 12B



Southbound On/Off Ramps

New Traffic Signal or Roundabout

New Traffic Signal or Roundabout

VT 116 Widened to 4 Lanes

New Bridge with Sidewalk & Multi-Use Path

TILLEY DRIVE

Northbound On/Off Ramps

Planned City Street Connection

New Traffic Signal or Roundabout

Planned Tilley Drive Extension

COMMUNITY D

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